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The causal linkage between socioeconomic status, occupational and educational aspiration, and attainment was examined in this attempt to test an existing theoretical model which used socioeconomic status as a major input variable, with significant other influence as a crucial intervening variable between socioeconomic status and aspiration. The findings of this 20-year longitudinal study gave partial support to the theoretical model tested. An especially strong relationship between educational attainment and occupational attainment was found. A large proportion of the variance was left unexplained. Therefore, other significant variables must be added to the model to determine more fully the factors that enable youth to raise their educational and occupational goals. Sample size (123), lack of IQ and grade point data, and the testing of an existing model were limitations involved in this study. Related documents are ED 017 393 and ED 016 544. (SW)

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Research reported herein was completed within the Rural Sociological Research Unit, Department of Sociology and Anthropology, Iowa State University, Ames, Iowa, under the direction of George M. Beal, Joe M. Bohlen, and Gerald E. Klonglan, with Richard Warren as statistical and methodology collaborator. The research was funded under Iowa Agricultural Experiment Station Project No. 1133 and U.S. Office of Education, Department of Health, Education and Welfare, Washington, D.C. Contract OE 5-85-108, Fund No. 431-13-40.

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ABSTRACT

A LONGITUDINAL STUDY OF OCCUPATIONAL ASPIRATIONS AND ATTAINMENTS OF IOWA YOUNG ADULTS

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The major objective of this paper is to test the theoretical model of Sewell, Haller and Portes which is concerned with the area of occupational and educational aspirations and attainments of young adults. Their model begins with socioeconomic status as a major input variable between socioeconomic status and aspirations. In addition, the influence of aspirations on later educational and occupational attainment is determined.

The data used to test the model are those from a longitudinal study. The benchmark study was conducted in 1948 when the respondents were seniors in nine rural high schools in north central Iowa. Background information and students' occupational and educational aspirations were gathered from 157 seniors at that time. These same respondents were reinterviewed in 1956 and again in 1967 concerning their attainments at those times. There were 152 respondents in the 1956 study and 143 in the 1967 study. Data from 123 of the respondents who were interviewed at all three periods of time and who indicated an occupational aspiration in 1948 are utilized in this paper.

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The findings of this study give general support to the model, especially that aspirations influence attainments. The major disagreement of our data to the theoretical model lies in the fact that the reference group variables did not act as intervening variables between socioeconomic status and educational and occupational aspirations. This then raises questions as to the importance of placing SES as the major input variable.

A LONGITUDINAL STUDY OF OCCUPATIONAL ASPIRATIONS AND ATTAINMENTS OF IOWA YOUNG ADULTS

Introduction

There has been a copious amount of literature written in the area of educational and occupational aspirations and attainments of American youth, but only recently has there been a conscious effort to understand the causal factors involved. Past research has indicated that aspirations tend to lead to achievements and that some people aspire to and achieve higher goals than others. But why is this true?

In a recent paper, Sewell, Haller and Portes[1] analyzed a series of factors that appear to be determinants of occupational attainments. Their theoretical model, which was developed from the present knowledge in the area, indicated the importance of socioeconomic differences which exist as determinants of different levels of aspirations. In addition to this variable, the intellectual ability, as measured by a number of different tests and grade points, has been found to be highly correlated to aspirations and attainments.[2] Because this study did not include grade points or IQ test scores, the model has been revised excluding these variables. Socioeconomic status therefore is considered to be the main input variable.

The second major variable utilized in the time sequence model was considered to be an intervening variable between family status and aspirations. At this point the influence of significant reference individuals play an important role in the individual's decision-making process. These reference groups, according to Hyman[3] and Merton[4] function as "a point of cognitive comparison for the appraisal of one's own situation, actions or traits."

Kahl[5] and Bordua[6] support the hypothesis that when parental influence is controlled, the relationships between socioeconomic status and occupational and educational aspirations of youth can be expected to decrease or to disappear completely. On the other hand, peer influence also appears to play an important role in affecting aspirations and later attainments.[7] Sussman and Levine indicated that parent's influence decreases as the adolescent grows older while the influence of friends becomes more important;[8] thus, the need to incorporate the influence of significant others as intervening variables between socioeconomic status and aspirations.

The final steps in the theoretical model include the educational and occupational attainments of the individual. It is hypothesized that both occupational and educational aspirations influence educational attainment, while educational attainment has the major influence on occupational attainment.

The objective of this study is to test the theoretical model presented by Sewell, Haller and Portes. This model begins with socio-economic status as the major input variable with significant other influence as a crucial intervening variable between SES and aspirations. In addition, the influence of aspirations on later educational and occupational attainment is determined.

Method

The research design most appropriate for this kind of analysis is the longitudinal design. This design enables a determination of the time sequence, and eliminates the problem of recall over extended periods

of time. The longitudinal design also allows the investigation of the dynamic aspect of the occupational decision-making process and the pattern of relationships among the aspiration and attainment variables. This paper presents the results of a 19-year longitudinal study.

Sample

In 1948, all graduating males and females from nine central Iowa rural high schools were interviewed to obtain information concerning background characteristics, migration intentions, and occupational and educational aspirations.[9] At that time 157 seniors responded to the questionnaire.

A follow-up study of the benchmark sample was conducted in 1956 and again in 1967. For the 1956 study data were obtained from 152 of the initial respondents using personal interviews; while 143 responded to mailed questionnaires in the 1967 study. Data obtained in these phases of the study included occupational and educational attainments, migration performance, and occupational and educational aspirations for their children.

This paper is concerned with those respondents, both males and females, who were interviewed at all three periods of time and who gave some indication of an occupational aspiration in 1948. The sample size utilized is 123 respondents.[10]

Variables

Level of occupational attainment (OAT) (X_8) was measured by assigning North-Hatt prestige scores[11] to the 1967 occupation held by all males and females, whether full or part time, and the occupation of the husbands of the married females not employed in the labor force.[12]

Because of the large number of females who were full-time housewives, and therefore not employed in the labor force, it was assumed that their husbands' occupation would give an indication of their family status and would reflect the goal each female would hope to achieve.

Since 19 years had elapsed between high school graduation and the most recent study, the individuals should have completed their formal education and their military training. In addition, the respondents' occupations and residence should be of a more permanent nature than was indicated in 1956.

Level of educational attainment (EAT) (X_7) was measured with data from 1967 by dividing the sample into those with a college degree, those who obtained additional education but did not receive a degree, and those who obtained no additional education beyond high school.

Level of educational aspiration (EAS) (X_6) was a trichotomous variable corresponding to the respondents' indication in 1948 of aspirations to continue education, undecided concerning educational aspirations, and no aspirations to continue education beyond high school.

Level of occupational aspirations (OAS) (X_5) was operationalized with data obtained in 1948 by assigning North-Hatt prestige scores to the occupation given as first choice that the respondents would best like to achieve when they complete their education. It was assumed that the females selected an occupation that represented a particular social status they would ultimately hope to achieve since in most cases they would become housewives and not employed in the labor force.

Peer influence (PI) (X_4) was developed into an index with a range of 0-6 from data gathered in 1948. Each respondent was asked to

specify "the names of those people in the senior class whom you consider as best friends and with whom you associate most." Each respondent could indicate three best friends.

To maintain as much consistency as possible with the Sewell, et.al. model, the index was constructed utilizing the congruency between the educational aspirations of the respondent and that of his best friends in his senior class. The highest score of 6 was obtained if the individual indicated three friends whose educational aspirations were the same as his own, regardless of whether he planned to continue or not continue his education. The score of 0 was assigned to those who named three best friends whose educational aspirations were inconsistent with his own aspirations. Other combinations fell in between these two extremes. (See Appendix A for a more detailed discussion of the index.)

Discussion with parents (DWP) (X_3) was operationalized from data gathered in 1948 which asked the respondents to indicate the frequency of discussion of future plans with parents. The categories included frequent discussion, infrequent discussion, and no discussion.

Significant other influence (SOI) (X_2) was constructed by summing the scores of the peer influence and discussion with parents variables. This index provides us with a measure of the influence that two important reference groups have on an individual's occupational decision-making process.

The justification for the direct summation of these two variables, which allows the peer influence twice the weight of the discussion with parents, is supported by Sussman and Levine when they found that "the parent's influence decreases as adolescent grows older while the influence of friends becomes more important."[13] This is not to say

that parents are not an important reference group, but that by the time high school seniors are ready to graduate, the influence of their peer reference group is stronger than that of their parents.

It is felt that these two variables are a better test for the model than the variables used by Sewell, et.al. The rationale for this decision lies in the fact that the significant other influence variable used by Sewell, et.al. is a combination of three dichotomous, discrete variables while we have used continuous variables. In addition, our measures are non-directional in terms of influence in that discussion with parents does not indicate strong influence for attending college, but only is concerned with the frequency of discussion with parents regardless of college or no college plans. The peer influence variable is also handled in a similar manner. Whether or not an individual plans to attend college is not the important factor in peer influence but the congruency of his own educational plans with his friends' educational plans.

Socioeconomic status (SES) (X_1) was measured by the utilization of Sewell's short form scale of socioeconomic status.[14] The scores ranged from 61-85 with the high score equal to high socioeconomic status. The data was gathered in 1948.

In the regression analysis, all variables were coded in the same direction from low to high categories.

Statistical Procedures

The purpose of this paper is to examine the causal linkage between socioeconomic status and occupational and educational aspirations and attainments.

The strategy is to present zero-order correlations between all of the variables in the model to provide the initial relationships that exist. Then the analysis proceeds by discussing the relationships obtained by computing partial regression equations which are then standardized (path coefficients).[15] The path coefficients are expressed in beta-weights of all of the preceding independent variables on the successive dependent variables in the model. These paths can then be compared with each other to determine the relative importance of the different variables affecting a particular variable. The path coefficients are tested for significance using the Student's t-test. When the coefficient is significant at the .05 level, the causal arrow is placed in the model.

Results

The gross relationships between the various independent and dependent variables can be observed from the zero-order correlations in Table 1. From the matrix, it can be seen that socioeconomic status, occupational and educational aspirations and educational attainments are moderately related to occupational attainments, but discussion with parents and peer influence indicate extremely low non-significant correlations. These latter findings are inconsistent with the findings of Sewell, et.al., who found significant relationships with the significant other influence variable.

Socioeconomic Status

In analyzing the variable-by-variable relationships in the model developed by Sewell, et.al., we can determine the fit of our data to their model. The zero-order correlation between SES and significant

Table 1

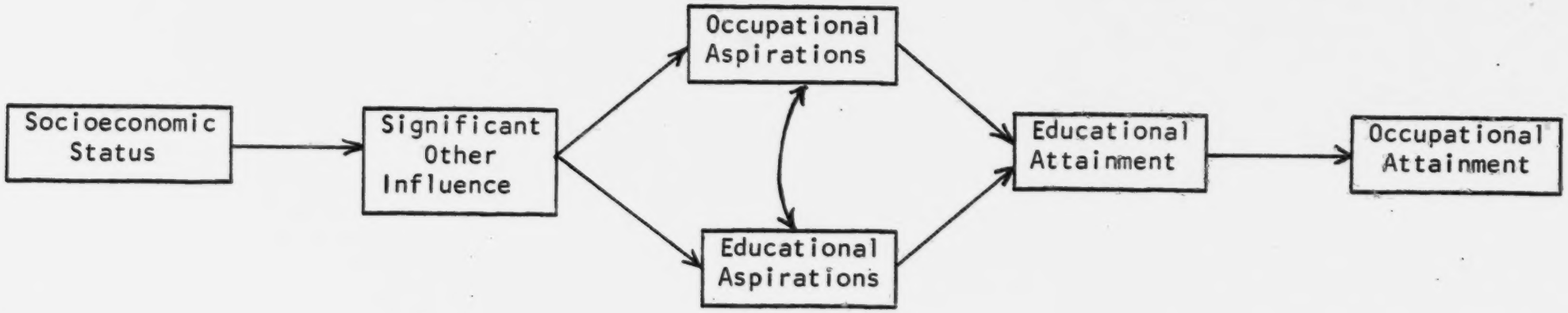
Zero-Order Correlations Between Independent and Dependent Variables.

	X_1 Socioeconomic Status	X_2 Significant Other Influence	X_3 Discussion With Parents	X_4 Peer Influence	X_5 Occupational Aspirations	X_6 Educational Aspirations	X_7 Educational Attainment	X_8 Occupational Attainment
X_1-SES	----							
X_2-SOI	.049	----						
X_3-DWP	.222	.405	----					
X_4-PI	-.022	.951	.103	----				
X_5-OAS	.143	-.141	.065	-.176	----			
X_6-EAS	.271	.240	.132	.216	.313	----		
X_7-EAT	.227	.087	.177	.035	.356	.573	----	
X_8-OAT	.245	-.044	.026	-.057	.349	.374	.482	----

Figure 1

Theoretical Model of Empirical Relationships Among Variables of Sewell, Haller, and Portes*

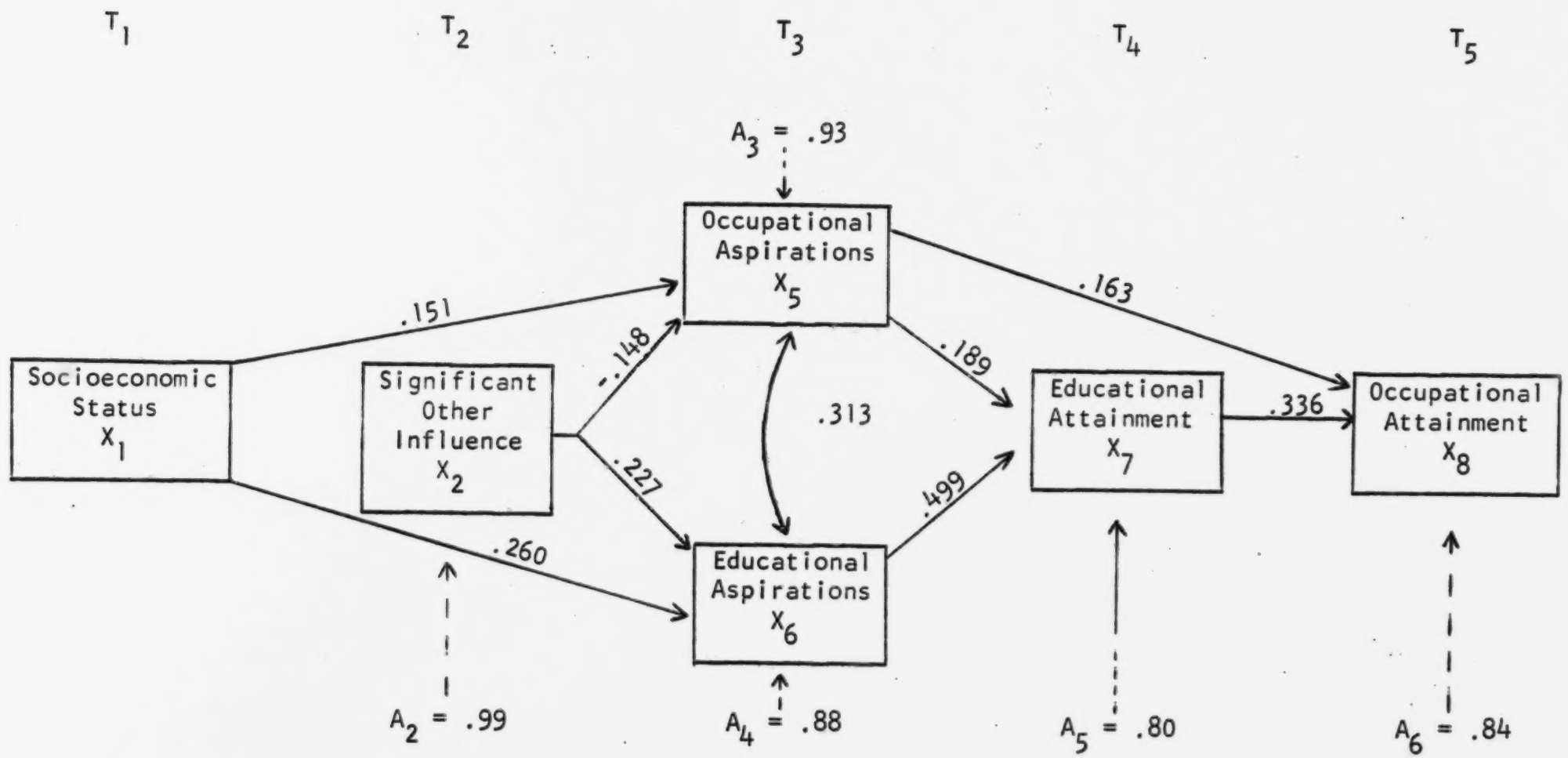
T_1 T_2 T_3 T_4 T_5



* William H. Sewell, Archibald O. Haller, and Alejandro Portes, "Educational and Occupational Achievements of Wisconsin Farm Boys," Paper presented at the joint sessions of the Rural Sociological Society and the American Sociological Association, San Francisco, California, August 1967.

Figure 2

Path Analysis: A Model of Significant Relationships Among Variables.*



*Level of Significance = .05
Double-pointed arrows (⟷) indicate relationships where no assumptions of causality have been made.
Single-pointed arrows (⟶) indicate the hypothesized direction of causal influence.

Figures given are standardized beta weights (path coefficients).

T = Time, A = square root of coefficient of alienation (residual).

Figure 3

Amount of Explained Variance for Each Dependent Variable in Figure 2.

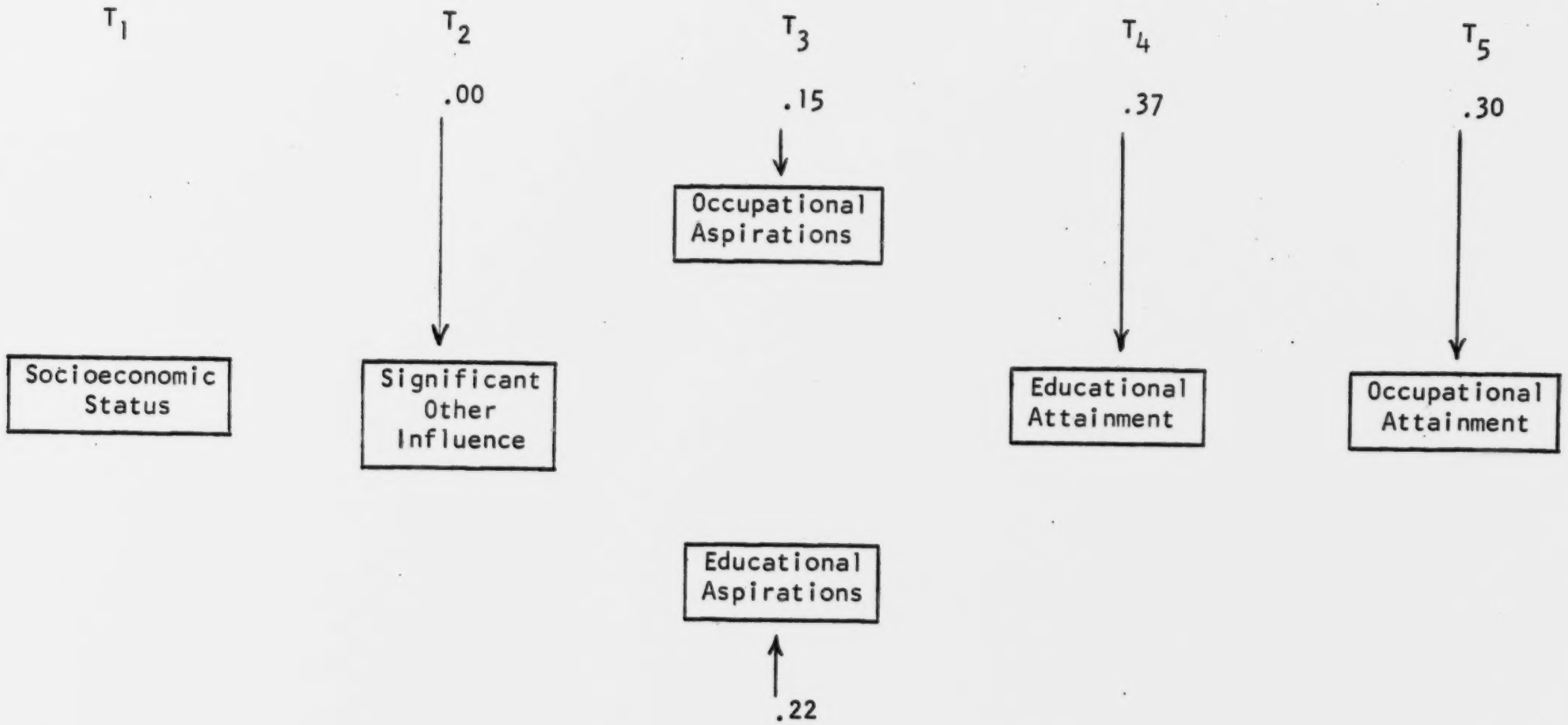
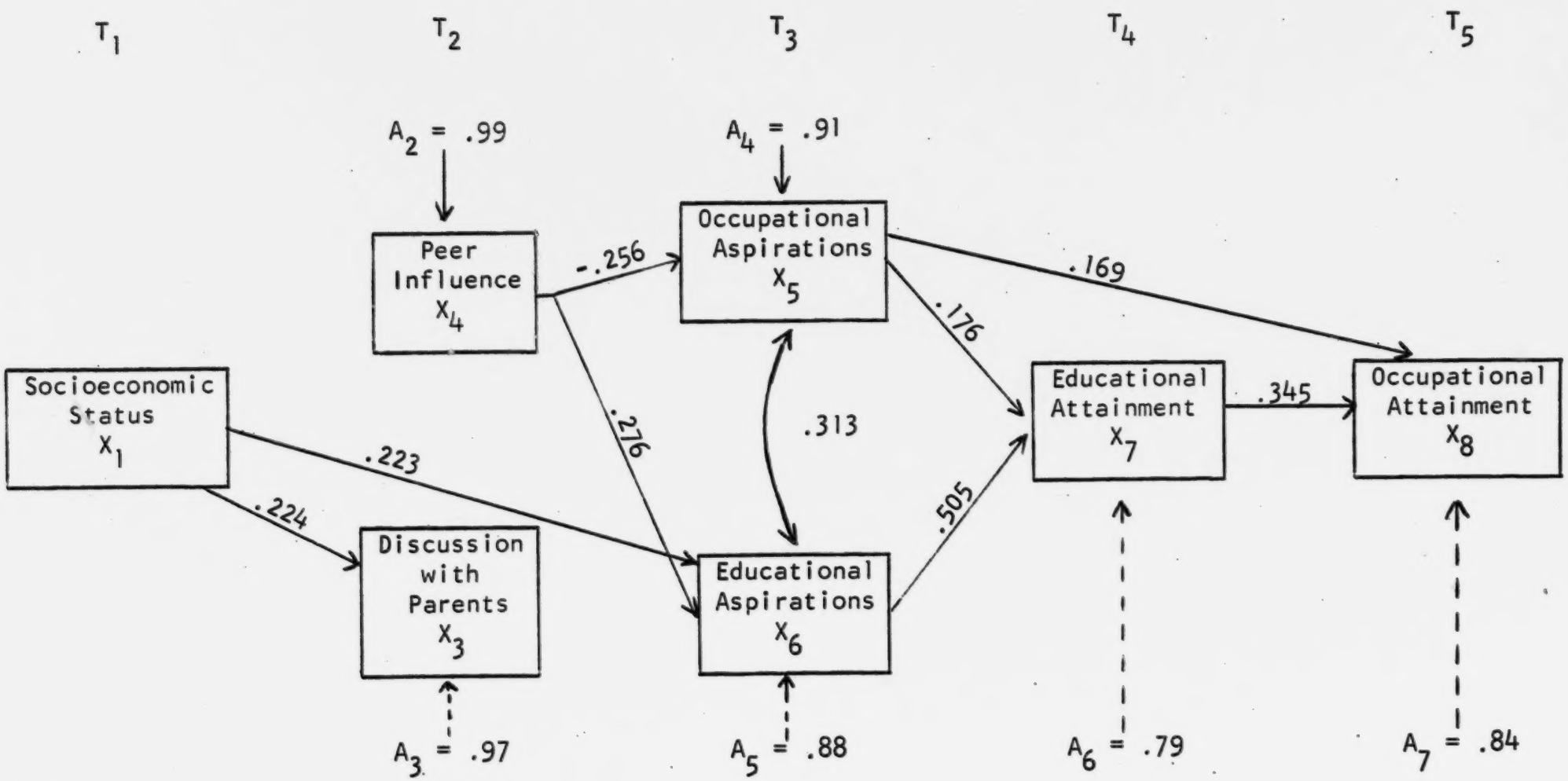


Figure 4

Path Analysis: A Revised Model of Significant Relationships Among Variables.*



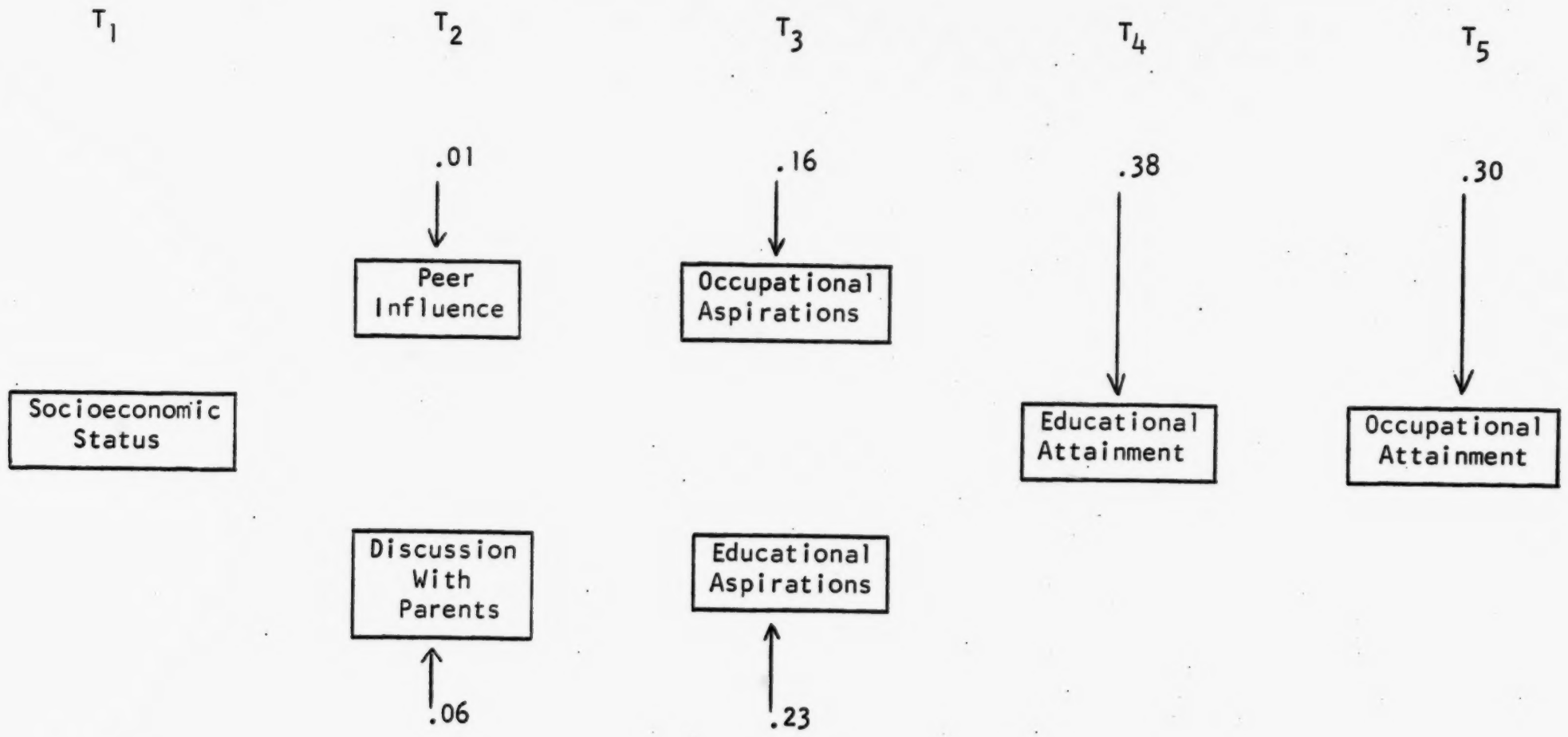
*Level of Significance = .05
Double-pointed arrows (⟷) indicate relationships where no assumptions of causality have been made.
Single-pointed arrows (⟶) indicate the hypothesized direction of causal influence.

Figures given are standardized beta weights (path coefficients).

T = Time, A = square root of coefficient of alienation (residual).

Figure 5

Amount of Explained Variance for Each Dependent Variable in Figure 4.



other influence is extremely small, but it is small-to-moderate with the aspirations and attainment variables. This immediately indicates a problem of including SES as the major input variable.

As is seen in the model, Figure 1, there is no arrow leading from SES to either the aspirations or attainments variables; but when we analyze data in this study, a statistically significant relationship is indicated between SES and educational aspirations, even when significant other influence is controlled, Figure 2. These findings fail to give support to the importance of significant other influence as a crucial intervening variable between SES and educational and occupational aspirations.

Because of the failure of the significant other influence variable to act as an intervening variable, a path analysis was completed using peer influence and discussion with parents separately. This appears to be a more logical approach for the data in this study because of the lack of a strong correlation between the two variables and the total score. See the correlations in Table 1. The path analysis of placing both discussion with parents and peer influence variables in the model can be seen in Figure 4. This model indicates the difference in the two significant other variables within the model. A significant path is indicated from socioeconomic status to discussion with parents and to educational aspirations, but not to peer influence. No statistically significant path exists between SES and occupational aspirations, but also a correlation did not exist between SES and occupational aspirations.

From the analysis thus far it can be seen that SES determines discussion with parents and educational aspirations. But as an input variable it does not determine peer influence nor does it have an influence on occupational aspirations.

There is support for the model when we analyze the relationship between SES and educational and occupational attainments. The variables are highly correlated, as seen in Table 1, but the significant relationships disappear when all other relevant variables have been controlled. This leads to an elimination of direct lines from SES to attainments as indicated in the theoretical model.

Significant Other Influence

Table 1 indicates the zero-order correlation between the significant other influence variables (discussion with parents and peer influence) and the aspirations and attainment variables. We have demonstrated that these significant other variables have not acted as mediating variables between SES and aspirations. It can be seen in Figure 4 though that these two variables display different influence on the occupational and educational aspirations variables. Peer influence indicates significant paths to both educational and occupational aspirations when SES is controlled, while discussion with parents has no direct influence on either of the aspirations variables. Another factor that is difficult to explain is that the standardized beta weight between peer influence and occupational aspirations is in the negative direction, indicating that the higher the occupational aspiration, the less congruency with peer influence. This finding may be partially explained in the operationalization of the peer influence variable being oriented to congruence between educational aspirations of the individual and his peers.

It can be seen in Figure 4 that there is no direct influence of discussion with parents and peer influence with either of the attainment variables controlling for all other relevant variables. By observing the correlation matrix, Table 1, we would not expect direct relationships except in the use of discussion with parents and educational attainment. This direct influence is removed when the relevant variables are controlled.

Aspirations

Zero-order correlations between occupational and educational aspirations and attainments are found in Table 1. The correlations between these variables are among the highest in the matrix and all at highly significant levels. These is a moderately high relationship (.57) between educational aspirations and educational attainments and the influence remains high when all other relevant variables are controlled. See Figure 4. Likewise, a moderate relationship exists between occupational aspirations and occupational attainment, but this relationship is not nearly as strong as between educational aspirations and attainments or between educational attainment and occupational attainment.

We should expect a direct relationship between occupational aspirations and educational attainment because of the need for advanced education to achieve higher status occupations. This direct relationship holds true as hypothesized, holding the relevant variables constant. In fact, there is a stronger direct relationship between occupational aspirations and educational attainment than between occupational aspirations and occupational attainment, though both are at significant levels.

The relationship between occupational and educational aspirations is not considered to be a causal one; therefore, the two-way arrow is placed in the model with the zero-order correlation being given to show the relationship.

Attainments

The last step in the model is that leading from educational attainment to the final dependent variable of occupational attainment. It is seen that educational attainment determines occupational attainment controlling for all other variables. See Figure 4. In fact, educational attainment has the greatest single effect on occupational attainment. It is only occupational aspirations and educational attainment that have a direct relationship with occupational attainment, though educational aspirations may have an indirect effect through educational attainment. This relationship holds consistent with that of Sewell's, et.al., even though a considerably greater period of time existed between our study periods.

Though the path analysis indicates a general agreement to the model developed by Sewell, et.al., it must be stressed that the amount of variance explained for various steps of the model is not very high. Even if we only consider Time 4, educational attainment and Time 5, occupational attainment, the variance explained is 38 and 30 percent respectively. Therefore, some very important variables have been excluded from the model. See Figures 3 and 5 for the amount of explained variance (Multiple R^2) for each of the dependent variables.

Conclusions

The major purpose of this paper has been to replicate, to the best of the ability of the data, a causal model concerning occupational and educational aspirations and attainments of young adults. The statistical approach to the causal model has been a path analysis which provides a convenient approach to determine the direct and indirect effects of each of the independent variables in the causal chain.

The findings of this study give partial support to the theoretical model of Sewell, et.al. The exception comes when neither of the significant other influence variables, peer influence or discussion with parents, acts as intervening variable between socioeconomic status background and occupational and educational aspirations. Peer influence was not related to SES but did influence aspirations, while discussion with parents was related to SES but did not influence aspirations. Educational aspirations strongly influenced educational attainment, while occupational aspirations influenced both educational and occupational attainment at approximately the same strength.

There has been little problem in determining the time-ordering of the model because of the nature of the longitudinal data collection. In addition, the extended length of time from the statement of aspirations to the determination of attainments allowed a good test of the theoretical model of the relationship of the aspirations to attainment variables. We find an especially strong relationship between educational aspirations and attainments and between educational attainments and occupational attainments.

The model presented in this paper does not present a very large amount of variance explained in educational and occupational attainment.

The variance is 38 percent for educational attainment and 30 percent for occupational attainment. This explained variance is not much less than was found by Sewell, et.al. with the addition of grade point average and IQ scores included in the model.

The important issue here is that a large proportion of the variance is left unexplained. Therefore, we must find other significant variables that can be added to the model, as well as improve our techniques to determine more fully the factors that will enable youth to raise their educational and occupational goals and to achieve them.

Limitations of Study

There are a number of limitations involved in this study that should be pointed out. A major limitation is the small sample size and the inability to meaningfully analyze the data separately for males and females. Mueller,[16] in a working paper on causal models, indicated that "one should never use the technique (path analysis) for a sample of less than 100 cases, and the number of cases should be more than 200."

Another important consideration is the difficulty of attempting to replicate a model or a study with existing data. The operationalization of many of the dependent variables of aspirations and attainments is very consistent with that used by Sewell, et.al., but there are considerable differences among the independent variables. These include socioeconomic status and the significant other influence variables. The limitation of small sample size seems to be somewhat diminished because an existing model is being tested as compared to a new model being developed.

A third limitation is the failure of this study to have sufficient IQ and grade point data to include in the analysis. In 1948 the researchers were unable to obtain these data from all of the schools in the sample, thus forcing us to eliminate these important variables from our study.

Appendix A

Construction of Peer Influence Index

The initial scoring of the peer influence variable was designed to provide a score for all respondents regardless of the number of best friends indicated. The range of responses was from no friends to three friends, with each response worth one point. If an individual listed three friends and their responses to educational aspirations were all congruent with the response of the individual, the score assigned was 3. If three friends were indicated and all three gave responses to educational aspirations that were incongruent with the individual, a score of -3 was assigned. If two friends were listed and both responded consistently with the individual in regards to educational aspirations, a score of 2 was assigned. The scoring and all possible combinations were thus:

-3	3 incongruent
-2	2 incongruent
-1	1 incongruent (2 incongruent - 1 congruent)
0	No friends indicated (1 congruent - 1 incongruent)
1	1 congruent (2 congruent - 1 incongruent)
2	2 congruent
3	3 congruent

To maintain all positive numbers the above index scores were coded from zero to six for computations.

The justification for this index is based on the assumption that the more support (congruence) that one's friends have with an individual, the more likely that individual will achieve his goal. Conversely, the less support (incongruence) that exists between an individual and his stated friends, the less likely he is to achieve his stated goal. Likewise, with no friends indicated, there would be neither positive or negative support and thus coded as a midpoint of zero.

Footnotes

[1]William H. Sewell, Archibald O. Haller and Alejandro Portes, "Educational and Occupational Achievements of Wisconsin Farm Boys," paper presented at the joint sessions of the Rural Sociological Society and the American Sociological Association, San Francisco, California, (August, 1967).

[2]See A.O. Haller, "The Influence of Planning to Enter Farming on Plans to Attend College," Rural Sociology, 22 (June, 1957) pp. 137-141; Harry K. Schwarzweller, Sociocultural Factors and the Career Aspirations and Plans of Rural Kentucky High School Seniors, Lexington: University of Kentucky, Agricultural Experiment Station Progress Report 94, (September, 1960); Richard L. Simpson, "Parental Influence, Anticipatory Socialization and Social Mobility," American Sociological Review, 27 (August, 1962) pp. 517-522; William H. Sewell and Vimal P. Shah, "Social Class, Parental Encouragement, and Educational Aspirations," American Journal of Sociology, 37 (March, 1968) pp. 559-572.

[3]Herbert Hyman, "The Psychology of Status," Archives of Psychology, 269 (1942).

[4]Robert K. Merton, Social Theory and Social Structure, (revised edition) Glencoe, Illinois: The Free Press, (1957) pp. 281-386.

[5]J.A. Kahl, "Educational and Occupational Aspirations of 'Common Man' Boys," Harvard Educational Review, 23 (Summer, 1953) pp. 186-203.

[6]David J. Bordua, "Educational Aspirations and Parental Stress on College," Social Forces, 38 (March, 1960) pp. 262-269.

[7]R.F. Berdie, "Why Don't They Go To College?" Personnel and Guidance Journal, 31 (March, 1953) pp. 352-356; Donald R. Kaldor, Eber Eldridge, Lee G. Burchinal and I.W. Arthur, Occupational Plans of Iowa Farm Boys, Ames: Iowa Agricultural and Home Economics Experiment Station (September, 1962); C. Norman Alexander, Jr. and Ernest Q. Campbell, "Peer Influence on Adolescent Educational Aspirations and Attainments," American Sociological Review, 29 (August, 1964) pp. 568-575; Edward L. McDill and James Coleman, "Family and Peer Influences in College Plans of High School Students," Sociology of Education, 38 (Winter, 1965) pp. 112-126; A.O. Haller and C.E. Butterworth, "Peer Influence on Levels of Occupational and Educational Aspirations," Social Forces, 38 (May, 1960) pp. 289-295.

[8]Leilo Sussman and Gars Norman Levine, "The Entering Freshman at M.I.T.: Class of 61," (mimeo) as quoted in David Gottlieb and Charles E. Ramsey, The American Adolescent, Homewood, Illinois: The Dorsey Press, Inc. (1962) p. 150.

[9]Joe M. Bohlen, "Factors Related to Migration Intentions of High School Seniors, Hamilton County, Iowa, 1948," unpublished M.S. thesis, Ames: Iowa State University (1948).

[10]The difference between the 143 respondents who responded to the questionnaire and the 123 respondents used in this paper is due to the elimination of those respondents who were undecided concerning occupational aspirations in 1948.

[11]Paul K. Hatt and C.C. North, "Jobs and Occupations: A Popular Evaluation," Opinion News, 9 (September, 1947) pp. 3-13. The interpolations were devised by Bauder and Burchinal. See Ward W. Bauder and Lee G. Burchinal, Farm Migrants to the City, Ames: Iowa Agricultural and Home Economics Experiment Station Research Bulletin 534 (March, 1965) p. 365.

[12]Fifty-two percent of the females were not employed in the labor force.

[13]Sussman and Levine, op.cit. Also see Bernard C. Rosen, "Conflicting Group Membership: A Study of Parent-Peer Group Cross-Pressures," American Sociological Review, 20 (April, 1955) pp. 151-161.

[14]W.H. Sewell, "A Short Form of the Farm Family Socio-Economic Status Scale," Rural Sociology, 8 (June, 1943) pp. 161-169.

[15]For a brief discussion of path analysis see Otis Dudley Duncan, "Path Analysis: Sociological Examples," American Journal of Sociology, 72 (July, 1966) pp. 1-16.

[16]Charles W. Mueller, "Causal Models and Their Use by Sociologists," unpublished working paper, Ames: Department of Sociology and Anthropology, Iowa State University (1967).